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10/519,704

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Steen Hojgaard Christensen

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EXAMINER

BEKKER, KELLY JO

ART UNIT

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1794

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,704	<b>Applicant(s)</b> CHRISTENSEN ET AL.	
	<b>Examiner</b> KELLY BEKKER	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-36 is/are pending in the application.
- 4a) Of the above claim(s) 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-23 and 27-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

Amendments made January 22, 2010 have been entered.

Claims 12-36 are pending.

Claims 24-26 have been withdrawn.

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 22, 2010 has been entered.

***Claim Rejections - 35 USC § 112 2nd Paragraph***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The 112 2<sup>nd</sup> paragraph rejection of claims 12-23 and 27-36 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, specifically due to the recitation "high molecular weight" has been withdrawn in light of applicant's amendments made January 22, 2010.

The following 112 rejections are necessitated by applicant's amendments:

Claims 12-23 and 27-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 12-23 and 27-36 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the step of de-esterifying the pectin from a Degree of Esterification (DE) of 30-60% to a DE of under 30%, including 10-20% and 12-18%; Claims 12 and 28 as amended recite, a pectin obtained by a process including de-esterification to a range of 30-60%, however, the

product disclosed and claimed (see claims 15-17 and 31-33) recite pectin with a DE of under 30%, including 10-20% and 12-18%; the step from which the pectin DE is further reduced is essential but missing.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 12-23 and 27-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marr et al (WO 99/37685) in view of Larsen et al (WO 98/58968).

Marr et al (Marr) teaches a process for making low ester pectin comprising the steps of obtaining a starting pectin material, contacting the starting material with a bio-catalyst and de-esterfying the starting pectin, and further de-esterifying the pectin material with an alkali (page 4 lines 9-30). Marr teaches that the pectin has a de-esterification level of less than 20%, which encompasses the range of less than 30%, 10-20%, and 12-18% as recited in claims 15-17 and 31-33 (page 2 lines 16-26). Marr teaches that the pectin is used in jams and dairy products (page 6 lines 9-21).

Marr is silent to the modified pectin as amidated with ammonia, to the pectin ratio of intrinsic viscosity of the starting product to the intrinsic viscosity of the amidated pectin from 1.01-1.15, preferably 1.03-1.15, most preferably 1.04-1.15 as recited in claims 12-14 and 28-30, to the degree of amidation of 18% or less or 10-20% or 5-30% as recited in claims 15-17 and 31-33, to the Mark-Houwink factor of the pectin as recited in claims 18-20 and 34-36, and to the pectin as first de-esterified to a DE of 30-60%, wherein the molecular weight of the de-esterified pectin is greater than that of a de-esterified pectin prepared by acid or alkali hydrolysis as recited in claims 12 and 28.

Larsen et al (Larsen) teaches of a pectin which is de-esterified and then amidated with ammonia. Larsen teaches that the degree of esterification is 20-45 and the degree of amidization is 0-25. Larsen teaches that the process provides for improved functional characteristics. Refer specifically to page 8 lines 1-14 and page 18 line 27 through page 19 line 16.

Regarding the modified pectin as amidated with ammonia and the degree of amidation of 18% or less or 10-20% or 5-30%, it would have been obvious to one of ordinary skill in the art at the time the invention was made to amidate the de-esterified pectin of Marr to 0-25 in order to form a product with improved functional characteristics as taught by Larsen.

Regarding the pectin ratio of intrinsic viscosity of the starting product to the intrinsic viscosity of the amidated pectin from 1.01-1.15, preferably 1.03-1.15, most preferably 1.04-1.15 and the Mark-Houwink factor of the pectin, since modified Marr teaches of substantially the same method of treatment as the instantly claimed product, including de-esterification with a biocatalyst, then de-esterification by an alkyl, and then amidization with ammonia, one of ordinary skill in the art at the time the invention was made would expect that the product as taught by modified Marr possesses substantially the same properties, including the ratio of intrinsic viscosity of the starting product to the intrinsic viscosity of the amidated pectin and the Mark-Houwink factor, as the instantly claimed invention absent any clear and convincing arguments and/or evidence to the contrary.

Regarding the product by process limitation that the pectin as first de-esterified to a DE of 30-60%, wherein the molecular weight of the de-esterified pectin is greater than that of a de-esterified pectin prepared by acid or alkali hydrolysis, as Marr teaches that the pectin is treated by multiple de-esterification steps, including de-esterification with enzymes which are bio-catalysts and as Marr teaches of a final product that has the same de-esterification level as the instantly claimed product, it appears that the references teach of the product as instantly claimed; one of ordinary skill in the art would not expect that the degree of esterification in between steps of de-esterification to impart a patentable distinction to the final product claimed so long as the final product had the same de-esterification. Furthermore, to determine such a degree of esterification in multiple steps of de-esterification would have been obvious and routine determination to one of ordinary skill in the art. Specifically regarding the molecular weight of the pectin de-esterified with a biocatalyst as higher than the molecular weight of a pectin de-esterified with an acid or alkali, as Marr teaches that the pectin is de-

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esterified with an enzyme which is a bio-catalyst one of ordinary skill in the art would expect that the molecular weight be greater than that of a pectin de-esterified with an acid or alkali. As the references of record teach that the product is treated in substantially the same manner, i.e. de-esterification by a biocatalyst including an enzyme, one of ordinary skill in the art would expect substantially the same results in the final product, i.e. a molecular weight that is greater than a pectin de-esterified with an acid or alkali, that is substantially the same as the instantly claimed invention.

### ***Response to Arguments***

Applicant's arguments in the remarks and declaration filed January 22, 2010 have been fully considered but they are not persuasive.

Applicant argues in the remarks and declaration that there is no motivation to combine the teachings of Marr and Larson and that hindsight reconstruction was used because Marr does not provide suggestion or motivation for modification, because Larson teaches of a process with pectin fractions and Marr teaches of a bulk pectin product, and because Marr teaches of a degree of esterification of less than about 20 and Larson teaches of a degree of esterification of 50% or higher. Applicant's argument is not convincing as:

- It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).
- The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

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- In the instant case, only knowledge which was within the level of ordinary skill at the time the claimed invention was made was taken into account wherein the combining or modifying the teachings of the prior art to produce the claimed invention was by some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.
  - As stated above and in the previous office action, Marr teaches that the pectin has a de-esterification level of less than 20%, which encompasses the range of less than 30%, 10-20%, and 12-18% (page 2 lines 16-26); Larsen teaches that the degree of amidization of pectin with improved functional characteristics is 0-25% (page 8 lines 1-14 and page 18 line 27 through page 19 line 16); and it would have been obvious to one of ordinary skill in the art at the time the invention was made to amide the de-esterified pectin as taught by Marr to 0-25% in order to form a product with improved functional characteristics as taught by Larsen.
- Applicant's argument that the modification would not have been obvious because Marr does not provide suggestion or motivation for modification is not convincing as although Marr does not provide suggestion for the modification, the motivation and suggestion are found in the teachings of Larsen. The rejection is based on a combination of references and not upon one reference alone.
- Applicant's argument that the modification would not have been obvious because Larson teaches of a process with pectin fractions and Marr teaches of a bulk pectin product, is not convincing as the bulk pectin as taught by Marr includes pectin fractions and thus the process of Larson which enhances the pectin fractions would also enhance the pectin fractions in the bulk pectin, thus enhancing the bulk pectin as taught by Marr.

- Applicant's argument that the modification would not have been obvious because Marr teaches of a degree of esterification of less than about 20 and Larson teaches of a degree of esterification of 50% or higher is not convincing as Larson also teaches that the pectin has a degree of esterification of less than 50% which encompasses less than about 20% (Larson, page 8 lines 9-14).

In response to applicant's argument in the remarks and declaration that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a high molecular weight pectin and pectin with a high intrinsic viscosity) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Specifically regarding the high molecular weight pectin, it is noted that a sub-step in the product by process claims recites the production of a high molecular weight pectin, however, there is nothing claimed recited that the final product has a high molecular weight, not is there any limitation preventing the decrease of the molecular weight of the high molecular weight pectin of the sub-step. Specifically regarding the pectin as having a high intrinsic viscosity, the claims do not recite a pectin with a specific, i.e. a high intrinsic viscosity, but rather claim the ratio of intrinsic viscosity of the pectin before treatment with ammonia to the pectin treated with ammonia (i.e. the amidated pectin). As the references of record teach the pectin is treated with ammonia for amidation one of ordinary skill in the art would expect that the pectin possesses substantially the same ratio as instantly claimed; As the references of record teach that the product is treated in substantially the same manner, i.e. amidation by ammonia to produce an amidated pectin, one of ordinary skill in the art would expect substantially the same results in the final product, i.e. an intrinsic viscosity ratio of pre-amidated pectin to amidated pectin, that is substantially the same as the instantly claimed invention.

Applicant argues that the references of record do not teach the ratio of the intrinsic viscosity of the pectin and the Mark-Houwink factor of the pectin as instantly



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claimed. Applicant has chosen to use an equation with parameters that cannot be measured by the Office, for the purpose of prior art comparison, because the office is not equipped to manufacture prior art products and compare them for patentability. Therefore, applicant is reminded that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). In the instant case, as the pectin as taught by the references of record is produced in substantially the same method as the instantly claimed invention, including enzymatic desertification and amidation with ammonia, one of ordinary skill in the art at the time the invention was made would expect that the pectin produced by Marr in view of Larson posses substantially the same properties, including substantially the same ratio of intrinsic viscosity and Mark-Houwink factor as instantly claimed.

Applicant argues that the invention provides for surprising and unexpected results, as shown in the specification and the declaration. Applicant's argument is not convincing as 1) the references of record teach of the instantly claimed invention and 2) the comparative tests show a pectin treated by acid de-esterification and not enzymatic or bio-catalyst de-esterification which is instantly claimed and taught by the references of record.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KELLY BEKKER whose telephone number is (571)272-2739. The examiner can normally be reached on Monday through Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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